DEPARTMENT OF TRANSPORTATION 4910-9X

Office of the Secretary

[Docket No. DOT-OST-2018-0150**]**

Notice of Request for Comments: Scope of the Study on the Impact of Automated Vehicle Technologies on Workforce

AGENCY: Office of the Secretary (OST), U.S. Department of Transportation (DOT).

ACTION: Notice of request for comments.

SUMMARY: OST is announcing a request for information to solicit comment and feedback on the scope of the congressionally-required comprehensive analysis of the impact of automated vehicle technologies on workforce. This study will be conducted by DOT in consultation with the Department of Labor to provide a comprehensive analysis of the impact of [Advanced Driver Assist Systems] ADAS and [Highly Automated Vehicles] HAV technologies on drivers and operators of commercial motor vehicle, including the potential for any labor displacement. DOT will also coordinate this initiative with the U.S. Departments of Commerce and U.S. Department of Health and Human Services.

Each component of the study will engage the relevant interested and affected stakeholders such as industry representatives, driver and operator groups, and workforce training providers to ensure input from across the diverse commercial and non-commercial driver industry. While it may not be feasible to precisely predict the exact capabilities or timing of new automated vehicles technologies entering the marketplace, this study may construct statistical models, use-cases, and scenarios based projections based on the best available data on market forecasts, industry trends, and relevant labor markets to evaluate different technology penetration scenarios and their potential effects on the workforce and related factors.

The objectives of the request for comments on the comprehensive analysis of the impact of automated vehicle technologies on workforce are to obtain feedback into the scope of the study regarding the magnitude of the potential pace of transition in the transportation workforce and how other sectors of the workforce will adapt to the quality of life effects due to automation. The study will also examine training availability and what will be required to transition the traditional commercial driver into the new environment including transit bus automation. Finally, the study will analyze the issues of driver situational awareness in vehicles which may require operator re-engagement, the safety of truck platooning, and related traffic management.

Background: The pace of development and deployment of automated vehicle-related technology is expected to accelerate over the next decade. Likewise, the effects of this new technology on the current workforce is a concern to operators and industry. In August 2017, a Department of Commerce's Office of the Chief Economist study focused on "workers impacted by the adoption of autonomous vehicles used on roadways, such as automobiles, buses, and trucks (*The Employment Impact of Autonomous Vehicles*[1], Economics and Statistics Administration Issue Brief #05-17). The study found that "…the adoption of AVs has the potential to impact a sizable share of jobs in the economy." This could include job creation as well as displacement. Also, the *America's Workforce and the Self-Driving Future*[2] report, published by Securing America's Future Energy in June 2018, outlines the potential impact of autonomous vehicles use on the labor force, noting some of the complexities in assessing job gain/loss and displacement, as well as potential long-term employment and societal benefits. In

[1] http://www.esa.doc.gov/sites/default/files/Employment%20Impact%20Autonomous%20Vehicles_0.pdf
[2] https://avworkforce.secureenergy.org/wp-content/uploads/2018/06/Groshen-et-al-Report-June-2018-1.pdf

addition to the introduction of automated vehicles, the Nation's commercial driver[3] pool is impacted by other dynamics such as operator pay, route preferences, and demographics.

Advanced transportation technologies present enormous potential for improving the mobility of travelers with disabilities vastly enhancing quality of life, workplace access, and opportunities for full participation in the workforce and in society. Through the Accessible Transportation Technologies Research Initiative (ATTRI), DOT is leading efforts to develop and implement transformative applications to improve mobility options for all travelers, particularly those with disabilities. DOT is seeking to explore innovative travel options focusing its efforts on removing barriers to transportation for people with visual, hearing, cognitive, and mobility disabilities through all steps of the trip-making process. DOT seeks to remove barriers to transportation across the "complete trip" chain leveraging advanced technology to enable people to travel independently any time, to any place, regardless of their individual abilities.

The 2018 Consolidated Appropriations Act provided up to $1.5 million to the Secretary of Transportation, in consultation with the Secretary of Labor, to conduct a comprehensive analysis of the impact of ADAS and HAV technologies on drivers and operators of commercial motor vehicles, including labor displacement. For purposes of this analysis, drivers and operators, who earn an income by driving, of commercial motor vehicles includes drivers which require a commercial driver's license and those that do not; and package delivery drivers, taxi, mobility as a service, and Transportation Network Companies (TNC).

[3] Commercial drivers for the scope of this study is defined as professional drivers who earn a living driving tow trucks, tractor trailers, motor coaches, and buses.

Statement of Work (SOW): The general areas of inquiry are summarized and listed below. Specific research questions could be further adopted during the study examination after assumptions and study parameters are validated based on input and feedback obtained through the request for comments period. Comments obtained from this notice period will be used to calibrate the study strategy to enable the maximum value proposition.

1. Labor force transformation studies including potential statistical models to generate estimates of labor force effects given various HAV and ADAS adoption/timeline scenarios and segments of freight and passenger transportation that could be affected.
2. Labor force training needs including minimum and recommended training requirements, labor market programs that link workers to employment and public or private training programs to address skill gaps.
3. Technology operational safety issues impact to situational awareness caused by HAV and ADAS including options for reducing safety risks of reduced situational awareness and visibility, mobility, and safety issues related to platooning.
4. Quality of life improvements due to automation including mental fatigue related to traffic and queueing; enhanced travel choices, new job opportunities, and accessibility leading to independent travel and workplace access for people with disabilities, older adults, and individuals with functional impairments across the lifespan.

Area of	Research Questions	General Study Tasks

Inquiry		
1. Labor Force Transformation/Displacement		
Pace of potential job displacement from ADAS and HAV adoption.	When should stakeholders anticipate widespread introduction of AV technology which would directly impact the driver workforce? What are the potential effects from the different scenarios regarding adoption timelines and technology developments on the professional driver labor force?	Conduct a comprehensive literature review of related studies and methodologies. Create a predictive statistical model to generate estimates of labor force effects given various adoption/timeline scenarios. The model should be well-documented and replicable by outside parties.
Segments of freight and passenger transportation that could be affected.	What are the defined segments of commercial drivers in the United States? Which of these segments are most likely to be impacted, negatively or positively, and to what extent?	Create a typology of the specific segments of commercial and non-commercial drivers as it relates to trucks, buses, mail/package delivery drivers, and taxis/transportation network companies. Identify each segment most likely to be effected, and the extent of that effect. The effect could be job displacement or increased demand for that driver segment.
2. Labor Force Training Needs		
Minimum and recommended training requirements.	As commercial and non-commercial drivers transition into other transportation, or even unrelated, positions, what are new likely opportunities and what are the minimum levels of training and skills necessary to occupy those positions? What are the training/skills requirements for those jobs most in demand?	Catalog and annotate comparative studies from other transitioning labor markets e.g. manufacturing, agriculture, banking, etc. Identify the possible training needs for the variety of commercial and non-commercial drivers potentially impacted by AVs – both newly created transportation jobs or jobs in related or non-related sectors. Produce recommendations of training requirements to meet the needs identified and evaluate the available federal and state programs to meet these needs.
Existing labor market programs that link workers to employment.	What federal and state government-sponsored programs are used to match individuals with employment opportunities? What is the capacity of each program to meet the needs of displaced commercial and non-commercial drivers?	Prepare and annotate a comprehensive inventory of current federal and state labor market programs that link workers to job opportunities. Evaluate the capacity of these programs to meet the needs of commercial and non-commercial drivers displaced by autonomous vehicles.
Identification of how existing public or private training programs can	What gap(s) exist between existing programs and the needs of commercial and non-commercial drivers, including transitioning to new jobs?	Identify modifications to existing public or private training programs to include the teaching of new skills to safely operate ADS equipped vehicles as well as new skills needed to transition to other jobs.

be modified to address skill gaps.	If gaps exist, what recommended modifications to existing programs are needed to meet these needs?	
3. Technology Operational Safety Issues		
Impact to situational awareness caused by ADS and ADAS.	What are the risks of reduced situational awareness for a driver using ADAS technology, such as the potential for increased drowsiness?	Complete a literature review on the risks of the lack of driver vigilance and reduced situational awareness when operating a vehicle equipped with ADS or ADAS technologies. Produce a typology on the kinds of risks that are generated by this technology.
Options for reducing safety risks of reduced situational awareness	Quantify the likelihood of reduced driver situational awareness and identify methods and options to mitigate these risks.	Review existing human subject research and engage relevant stakeholders to identify existing and potential technological applications to address human factors risk.
Visibility, mobility, and safety issues related to platooning.	What are the principle safety issues associated with the use of platooning such as the reduced visibility of drivers in the following vehicles, and the interaction of passenger cars with truck platoons at highway speeds? What are the potential positive benefits of platooning technologies?	Identify and catalog existing studies on visibility, mobility, and safety issues related to truck platooning. Provide an annotated inventory of current or developing technologies which can address these issues and their likelihood of adoption. Catalog state laws addressing truck platoon operations.
4. Quality of Life Effects Due to Automation		
Potential effects to health and quality of life due to ADS and ADAS.	Given that higher level of automation allows drivers, subject to this study, to conduct other tasks other than driving, how will this impact the health and quality of life of the driving labor force. What are the potential economic benefits to increased access to jobs and the community for transportation-disadvantaged riders such as people with disabilities and seniors.	Conduct a comprehensive literature review of health issues associated with commercial and non-commercial drivers, including mental fatigue related to traffic and queueing. Explore insights into how HAV and ADAS can mitigate health issues, state of the industry pertaining to ADAS and HAV mobility as a service including research studies relating to technology readiness, enabling new job opportunities, and gaps in achieving the complete trip vision for older Americans and people with disabilities.
Note: Each of the four study components may include stakeholder outreach, as appropriate, to inform the analysis and identify relevant data sources.		

Comments are requested on the following questions regarding the Statement of Work:

1. Is the SOW in line with public interest?
2. Should the SOW be expanded or reduced to include or exclude any topic(s)?
3. Are there specific literature or studies that have been conducted on this subject that DOT and DOL should review before initiating this comprehensive analysis?

All comments and presentations should be submitted to the docket for consideration.

FOR FURTHER INFORMATION CONTACT: If you have questions about this notice, please contact us at automation@dot.gov or *Kareem Habib (202-366-1601) or Sujeesh Kurup (202-366-9953).*

SUPPLEMENTARY INFORMATION:

Written Comments: Please submit all written comments no later than November 5, 2018, by any of the following methods:

- *Federal Rulemaking Portal:* Go to http://www.regulations.gov. Follow the online instructions for submitting comments.
- *Mail:* Docket Management Facility: DOT, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590.
- *Hand Delivery or Courier:* 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal Holidays.
- *Fax:* 202-366-1767.

Instructions: All submissions must include the Agency name and docket number. Note that all comments received will be posted without change to *http://www.regulations.gov*, including any personal information provided. Please see the Privacy Act discussion below.

Docket: For access to the docket, go to *http://www.regulations.gov* to find Docket No. DOT-OST-2018-0150 at any time or to 1200 New Jersey Avenue, SE., West Building, Ground Floor, Room W12-140, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal Holidays. Telephone: 202-366-9826.

Privacy Act: Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000, (Volume 65, Number 70; Pages 19477-78), or you may visit *http://www.regulations.gov/privacy.html*.

Confidential Information: Any submissions containing Confidential Information must be delivered to OST in the following manner:

- Submitted in a sealed envelope marked "confidential treatment requested";
- Accompanied by an index listing the document(s) or information that the submitter would like the Departments to withhold. The index should include information such as numbers used to identify the relevant document(s) or information, document title and description, and relevant pages numbers and/or section numbers within a document; and
- Submitted with a statement explaining the submitter's grounds for objecting to disclosure of the information to the public.

OST also requests that submitters of Confidential Information include a non-confidential version (either redacted or summarized) of those confidential submissions in the public docket. In the event that the submitter cannot provide a non-confidential version of its submission, OST requests that the submitter post a notice in the docket stating that it has provided OST with Confidential Information. Should a submitter fail to docket either a non-confidential version of its submission or to post a notice that Confidential Information has been provided, we will note the receipt of the submission on the docket, with the submitter's organization or name (to the degree permitted by law) and the date of submission.

Issued in Washington, D.C. on October 3, 2018, under authority delegated at 49 USC 1.25a.

Finch Fulton,

Deputy Assistant Secretary for Transportation Policy.

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